In the claims:

1. (Currently amended) A label switching routing method for multi-protocol label switching (MPLS) optical communications network, comprising:

~~attaching a wavelength to each said label,~~

establishing a datapath as a sequence of ~~locally wavelength~~ labels between a source and a sink in said optical communications network, wherein each label includes a field identifying a communication attribute of the portion of the datapath associated with the label, wherein the communication attribute is selected from a group consisting of a wavelength, frequency, shim or time slot that is used for communication in a corresponding portion of the sequence,

converting a first wavelength having a first label to a second wavelength having a second label and forwarding the traffic to said sink according to said datapath, including updating the sequence of labels to replace the first label with the second label; and

transmitting said second wavelength label to said source ~~said label mapped with said second wavelength~~.

2. (original) A method as claimed in claim 1, further comprising attaching timeslots to said label so as to form a composite label having a wavelength portion and timeslot portion.

3. (original) A method as claimed in claim 2, wherein said timeslots have variable size.

4. (original) A method as claimed in claim 2, further comprising splitting said label received at an incoming interface into two outgoing composite labels.

5. (original) A method as claimed in claim 2, further comprising combining two incoming composite labels into one outgoing composite label.

6. (original) A method as claimed in claim 1, wherein said step of establishing a datapath is controlled by said multi-protocol label switching (MPLS) protocol.

7. (original) The routing protocol of claim 6, further including a constrained routing label distribution protocol (CR-LDP) for hierarchically controlling time, frequency, and statistically multiplexed paths and forming said composite layer in a single session.

8. (currently amended) An optical/time cross-connect (OTXC) for providing wavelength to wavelength conversion in a multi-protocol label switching (MPLS) optical communications network, comprising:

means for ~~attaching a wavelength to said~~ providing a label having a wavelength field for indicating a communication attribute of a communication path of the OTXC, the communication attribute selected from a group consisting of wavelength, frequency, shim and time slot;

means for converting a first wavelength associated with an incoming signal of the OTXC into a second wavelength associated with an outgoing signal of the OTXC;

means for updating a label associated with a communication path of the incoming signal to provide the value of the second wavelength in the wavelength field of the label ~~mapping said label based on said second wavelength~~; and

means for forwarding the updated label to the source ~~said label mapped with said second wavelength~~.

C1 cont

9. (original) The optical/time cross-connect of claim 8, wherein said means for converting are controlled by said multi-protocol label switching (MPLS) protocol.

10. (original) The optical/time cross-connect of claim 8, further including multiplexing means for providing statistical multiplexing, frequency division multiplexing, and time division multiplexing under the control of said MPLS protocol.

11. (Currently amended) The optical/time cross-connect of claim 8, wherein said OTXC further ~~comprising~~ comprises means for assigning timeslots for a wavelength flowing back to the source whenever said wavelength arrives with an attached timeslot.

12. (original) The optical/time cross-connect of claim 11, wherein said timeslots have a variable size in accordance with the speed of the optical carriers connected to a signaling interface of said OTXC, and the label requested at said signaling interface.

C1 cancel

13. (New) A network communication system comprising a source and sink node coupled by an intermediate node, the network communications system comprising:

means for defining a datapath between the source and sink nodes, the datapath being represented as a sequence of labels, each label identifying a path between a pair of nodes in the datapath, and identifying a communication attribute of a portion of the datapath associated with the label, the communication attribute selected from a group consisting of wavelength, frequency, shim and time slot, the wavelength field for storing a value of the respective communication attribute used to communicate in the portion of the datapath.